

**What is claimed is:**

1. An image status estimating method for estimating a status of an image, comprising:

5 dividing an image into a plurality of areas;

computing a characteristic amount for each of the plurality of areas; and

10 computing a statistic amount for estimation of the status of the image using the characteristic amount.

2. The method according to claim 1, wherein

15 said image is divided according to tone level information of a pixel forming the image.

3. The method according to claim 1, wherein

20 said statistic amount is computed using the characteristic amount for each said area and a weight coefficient corresponding to each said area.

4. The method according to claim 3, wherein

25 said statistic amount is obtained by adding the weight coefficient for each said area as a weight and computing a weighted average value between areas of the characteristic amount.

5. The method according to claim 3, wherein  
said statistic amount is obtained by adding  
the weight coefficient for each said area as a  
5 weight and computing standard deviation of the  
characteristic amount.

10 6. The method according to claim 3, wherein  
said weight coefficient is determined based on  
a number of pixels forming a corresponding the area.

15 7. The method according to claim 6, wherein  
when the number of pixels forming the area is  
smaller than a predetermined threshold, a weight  
coefficient for the area is set to 0.

20 8. The method according to claim 3, wherein  
said weight coefficient is determined  
corresponding to the area in a corresponding  
position on the image.

25 9. The method according to claim 8, wherein  
when the position of the area is closer to a  
center of the image, the weight coefficient for the  
area is set to a larger value.

10. The method according to claim 1, wherein  
a tone level of a pixel forming part of the  
image is converted into a brightness value, and the  
5 characteristic amount is computed using the  
conversion result.

10 11. The method according to claim 1, wherein  
a tone level of a pixel forming part of the  
image is converted into a chroma value, and the  
characteristic amount is computed using the  
conversion result.

15 12. The method according to claim 1, wherein  
characteristic amounts corresponding to  
respective pixels forming the image are averaged,  
and the characteristic amount is computed using an  
obtained average value.

20 13. The method according to claim 1, wherein  
said image is divided into a plurality of  
areas according to tone level information and  
positional information about pixels forming the  
image.

14. An image correcting method for correcting an original image, comprising:

dividing an image into a plurality of areas;

5 computing a characteristic amount for each of the plurality of areas;

computing a statistic amount for estimation of the status of the image using the characteristic amount;

10 comparing the computed statistic amount with a predetermined value;

determining a correcting parameter based on the comparison result; and

correcting the original image using the correcting parameter.

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15. An image correcting method for correcting an original image, comprising:

generating a plurality of corrected images by correcting the original image using a plurality of 20 different correcting parameters;

dividing the plurality of corrected images respectively into a plurality of areas;

computing characteristic amounts for the plurality of areas corresponding to the plurality 25 of corrected images;

computing a statistic amount indicating a status of a corrected image using the characteristic amount for the plurality of corrected images; and

5 defining a corrected image obtained using a correcting parameter corresponding to a statistic amount closest to a predetermined value among the computed statistic amounts as an appropriate corrected image.

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16. An image correcting method for correcting an original image, comprising:

15 a first step of generating a corrected image for the original image using any correcting parameter;

a second step of dividing the corrected image into a plurality of areas;

a third step of computing a characteristic amount for each of the plurality of areas;

20 a fourth step of computing a statistic amount indicating a status of a corrected image using the characteristic amount;

25 a fifth step of defining the corrected image as an appropriate corrected image when the computed statistic amount is close to a predetermined value,

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generating a corrected image for the original image by changing a value of the correcting parameter when the computed statistic amount is not close to the predetermined value, and transferring control  
5 to said second step.

17. An image correction apparatus which corrects an original image, comprising:

an area division unit dividing the original  
10 image into a plurality of areas;

a characteristic amount computation unit computing a characteristic amount for each of the plurality of areas;

15 a statistic amount computation unit computing a statistic amount indicating a status of an image using the characteristic amount;

a correcting parameter setting unit comparing the computed statistic amount with a predetermined value, and determining a correcting parameter based  
20 on a comparison result; and

an image correction unit correcting the original image using the correcting parameter.

18. The apparatus according to claim 17, further  
25 comprising

a weight coefficient computation unit computing a weight coefficient for each area, wherein

5 said statistic amount computation unit computes the statistic amount using the characteristic amount for each area and the weight coefficient for each area.

10 19. An image correction apparatus which corrects an original image, comprising:

a first image correction unit correcting the original image using a plurality of correcting parameters and generating a plurality of corrected images;

15 an area division unit dividing each of the plurality of corrected images into a plurality of areas;

20 a characteristic amount computation unit computing a characteristic amount for each of the plurality of areas;

a statistic amount computation unit computing a statistic amount indicating a status of an image using the characteristic amount; and

25 a second image correction unit determining a corrected image obtained using the correcting

parameter corresponding to the statistic amount closest to a predetermined value among the plurality of computed statistic amounts as a correction result.

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20. An image correction apparatus which corrects an original image, comprising:

an area division unit dividing the original image into a plurality of areas;

10 a first image correction unit correcting the original image divided into the plurality of areas using a plurality of correcting parameters, and generating a plurality of corrected images;

15 a characteristic amount computation unit computing a characteristic amount for each of a plurality of areas of the corrected images;

a statistic amount computation unit computing a statistic amount indicating a status of an image using the characteristic amount; and

20 a second image correction unit defining a corrected image obtained using the correcting parameter corresponding to a statistic amount closest to a predetermined value among the plurality of computed statistic amounts as a  
25 correction result.

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21. An image correction apparatus which corrects an original image, comprising:

an area division unit dividing the original  
5 image into a plurality of areas;

a characteristic amount computation unit computing a characteristic amount for each of the plurality of areas;

10 a characteristic amount correction unit correcting the characteristic amount using a plurality of correcting parameters, and generating a plurality of corrected characteristic amounts;

15 a statistic amount computation unit computing a statistic amount indicating a status of an image using the corrected characteristic amount; and

20 an image correction unit correcting the original image using the correcting parameter corresponding to a statistic amount closest to a predetermined value.

22. An image correction apparatus which corrects an original image, comprising:

25 a correcting parameter setting unit setting a correcting parameter;

a first image correction unit correcting the original image using a correcting parameter set by said correcting parameter setting unit, and generating a corrected image;

5           an area division unit dividing the corrected image into a plurality of areas;

              a characteristic amount computation unit computing a characteristic amount for each of the plurality of areas;

10          a statistic amount computation unit computing a statistic amount indicating a status of an image using the characteristic amount; and

15          a second image correction unit instructing said correcting parameter setting unit to set a new correcting parameter if the computed statistic amount is closer to a predetermined value than a previously obtained statistic amount, and defining a corrected image obtained using the correcting parameter corresponding to the previously obtained statistic amount as a correction result if the previously obtained statistic amount is closer to the predetermined value than the computed statistic amount.

25          23. An image correction apparatus which corrects

an original image, comprising:

an area division unit dividing the original image into a plurality of areas;

5           a correcting parameter setting unit setting a correcting parameter;

a first image correction unit correcting the original image divided into the plurality of areas using the correcting parameter set by said correcting parameter setting unit, and generating a  
10           corrected image;

a characteristic amount computation unit computing a characteristic amount for each of the plurality of areas of the corrected image;

15           a statistic amount computation unit computing a statistic amount indicating a status of an image using the characteristic amount; and

20           a second image correction unit instructing said correcting parameter setting unit to set a new correcting parameter if the computed statistic amount is closer to a predetermined value than a previously obtained statistic amount, and defining a corrected image obtained using the correcting parameter corresponding to the previously obtained statistic amount as a correction result if the  
25           previously obtained statistic amount is closer to

the predetermined value than the computed statistic amount.

24. An image correction apparatus which corrects  
5 an original image, comprising:

an area division unit dividing the original image into a plurality of areas;

10 a characteristic amount computation unit computing a characteristic amount for each of the plurality of areas;

a correcting parameter setting unit setting a correcting parameter;

15 an characteristic amount correction unit correcting the characteristic amount using the correcting parameter set by said correcting parameter setting unit, and generating a corrected characteristic amount;

20 a statistic amount computation unit computing a statistic amount indicating a status of an image using the corrected characteristic amount; and

25 a second image correction unit instructing said correcting parameter setting unit to set a new correcting parameter if the computed statistic amount is closer to a predetermined value than a previously obtained statistic amount, and defining

a corrected image obtained using the correcting parameter corresponding to the previously obtained statistic amount as a correction result if the previously obtained statistic amount is closer to  
5 the predetermined value than the computed statistic amount.

25. An image correction apparatus which corrects an original image, comprising:

10 area division means for dividing the original image into a plurality of areas;

characteristic amount computation means for computing a characteristic amount for each of the plurality of areas;

15 statistic amount computation means for computing a statistic amount indicating a status of an image using the characteristic amount;

correcting parameter setting means for comparing the computed statistic amount with a  
20 predetermined value, and determining a correcting parameter based on a comparison result; and

image correction means for correcting the original image using the correcting parameter.

25 26. An image correction apparatus which corrects

an original image, comprising:

first image correction means for correcting the original image using a plurality of correcting parameters and generating a plurality of corrected images;

area division means for dividing each of the plurality of corrected images into a plurality of areas;

characteristic amount computation means for computing a characteristic amount for each of the plurality of areas;

statistic amount computation means for computing a statistic amount indicating a status of an image using the characteristic amount; and

second image correction means for determining a corrected image obtained using the correcting parameter corresponding to the statistic amount closest to a predetermined value among the plurality of computed statistic amounts as a correction result.

27. An image correction apparatus which corrects an original image, comprising:

area division means for dividing the original image into a plurality of areas;

first image correction means for correcting the original image divided into the plurality of areas using a plurality of correcting parameters, and generating a plurality of corrected images;

5 characteristic amount computation means for computing a characteristic amount for each of a plurality of areas of the corrected images;

10 statistic amount computation for computing a statistic amount indicating a status of an image using the characteristic amount; and

15 second image correction means for defining a corrected image obtained using the correcting parameter corresponding to a statistic amount closest to a predetermined value among the plurality of computed statistic amounts as a correction result.

28. An image correction apparatus which corrects an original image, comprising:

20 area division means for dividing the original image into a plurality of areas;

characteristic amount computation means for computing a characteristic amount for each of the plurality of areas;

25 characteristic amount correction means for

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correcting the characteristic amount using a plurality of correcting parameters, and generating a plurality of corrected characteristic amounts;

statistic amount computation means for  
5 computing a statistic amount indicating a status of an image using the corrected characteristic amount; and

10 image correction means for correcting the original image using the correcting parameter corresponding to a statistic amount closest to a predetermined value.

29. An image correction apparatus which corrects an original image, comprising:

15 correcting parameter setting means for setting a correcting parameter;

first image correction means for correcting the original image using a correcting parameter set by said correcting parameter setting means, and  
20 generating a corrected image;

area division means for dividing the corrected image into a plurality of areas;

characteristic amount computation means for computing a characteristic amount for each of the  
25 plurality of areas;

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statistic amount computation means for computing a statistic amount indicating a status of an image using the characteristic amount; and

second image correction means for instructing said correcting parameter setting means to set a new correcting parameter if the computed statistic amount is closer to a predetermined value than a previously obtained statistic amount, and defining a corrected image obtained using the correcting parameter corresponding to the previously obtained statistic amount as a correction result if the previously obtained statistic amount is closer to the predetermined value than the computed statistic amount.

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30. An image correction apparatus which corrects an original image, comprising:

area division means for dividing the original image into a plurality of areas;

20                   correcting parameter setting means for setting  
a correcting parameter;

first image correction means for correcting the original image divided into the plurality of areas using the correcting parameter set by said 25 correcting parameter setting means, and generating

a corrected image;

characteristic amount computation means for computing a characteristic amount for each of the plurality of areas of the corrected image;

5 statistic amount computation means for  
computing a statistic amount indicating a status of  
an image using the characteristic amount; and

second image correction means for instructing said correcting parameter setting means to set a new correcting parameter if the computed statistic amount is closer to a predetermined value than a previously obtained statistic amount, and defining a corrected image obtained using the correcting parameter corresponding to the previously obtained statistic amount as a correction result if the previously obtained statistic amount is closer to the predetermined value than the computed statistic amount.

20        31. An image correction apparatus which corrects  
an original image, comprising:

area division means for dividing the original image into a plurality of areas;

characteristic amount computation means for  
computing a characteristic amount for each of the

plurality of areas;

correcting parameter setting means for setting  
a correcting parameter;

characteristic amount correction means for  
5 correcting the characteristic amount using the  
correcting parameter set by said correcting  
parameter setting means, and generating a corrected  
characteristic amount;

statistic amount computation means for  
10 computing a statistic amount indicating a status of  
an image using the corrected characteristic amount;  
and

second image correction means for instructing  
said correcting parameter setting means to set a  
15 new correcting parameter if the computed statistic  
amount is closer to a predetermined value than a  
previously obtained statistic amount, and defining  
a corrected image obtained using the correcting  
parameter corresponding to the previously obtained  
20 statistic amount as a correction result if the  
previously obtained statistic amount is closer to  
the predetermined value than the computed statistic  
amount.

25 32. A computer-readable storage medium storing a

program used to direct a computer for estimating a status of an image to perform a process, comprising:

dividing an image into a plurality of areas;

5 computing a characteristic amount for each of the plurality of areas; and

computing a statistic amount for estimation of the status of the image using the characteristic amount.

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33. A computer-readable storage medium storing a program used to direct a computer for correcting an original image to perform a process, comprising:

dividing an image into a plurality of areas;

15 computing a characteristic amount for each of the plurality of areas;

computing a statistic amount for estimation of the status of the image using the characteristic amount;

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comparing the computed statistic amount with a predetermined value;

determining a correcting parameter based on the comparison result; and

25 correcting the original image using the correcting parameter.

34. A computer-readable storage medium storing a program used to direct a computer for correcting an original image to perform a process, comprising:

5 generating a plurality of corrected images by correcting the original image using a plurality of different correcting parameters;

dividing the plurality of corrected images respectively into a plurality of areas;

10 computing characteristic amounts for the plurality of areas corresponding to the plurality of corrected images;

15 computing a statistic amount indicating a status of a corrected image using the characteristic amount for a plurality of corrected images; and

20 defining a corrected image obtained using a correcting parameter corresponding to a statistic amount closest to a predetermined value among the computed statistic amounts as an appropriate corrected image.